

$V=0$
All PE

m

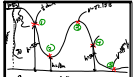
x

dh

$PE + KE$

$$ME_i = ME_f$$
$$PE_{lost} = KE_{gained}$$
$$mg dh = \frac{1}{2} m v^2$$
$$g dh = \frac{1}{2} v^2$$

Dec 9-7:33 AM



Conservation of Energy

PE + KE can switch
but ME is same

$ME = PE + KE$

For each position,
find V or h
+ find TME

① Start at top
all PE
 $PE = mgh$
 $PE = (m)(9.8)(10)$
 $ME = mgh + \frac{1}{2}mv^2$

$ME_i = mgh_i + \frac{1}{2}mv_i^2$
 $ME_i = 588000J$

② $ME = 588000J$
 $ME = mgh + \frac{1}{2}mv^2$
 $588000 = (60)(9.8)(5) + \frac{1}{2}(60)(v^2)$
 $V = 21.7m/s$

③ $ME = mgh + \frac{1}{2}mv^2$
 $588000 = (60)(9.8)(15) + \frac{1}{2}(60)(v^2)$
 $V = 31.3m/s$

④ $ME = mgh + \frac{1}{2}mv^2$
 $588000 = (60)(9.8)(10) + \frac{1}{2}(60)(v^2)$
 $V = 21.7m/s$

⑤ $ME = mgh + \frac{1}{2}mv^2$

Dec 9-8:17 AM